Homework 3

This assignment was locked Feb 14 at 11:59pm.

In this homework problem we will learn to stamp components from a circuit into a matrix describing that circuit using the methods from nodal analysis in Circuits 1. Then we will apply this to a simple problem.

When running with a voltage source, the only output from your program must be the resulting voltage vector. Remember that the last element(s) in the vector is actually the current through the voltage source(s) when one, or more, voltage sources are included.

When running with the current source, the only output from your program must be the voltage vector.

You should submit hw3.py. Do not submit any of the below files (other than your significantly enhanced hw3.py).

NOTE: This means you MUST NOT change the constants you use!

You may use the schematics in the lecture as tests to see if your solution is correct. However,  the grader will also run your code on other circuits which may have multiple current sources, voltage sources, or both, and far more resistors. So, make up some circuits of your own for which you can easily compute the answers to check your work.

You may assume that the nodes will be numbers 0-N consecutively so you need not worry about missing node numbers.

NOTE: Do not try to resize the arrays! You should be able to size the arrays correctly before populating them!

**Attachments (same as from the lecture):**

[comp\_constants.py](https://canvas.asu.edu/courses/177204/files/79050657/download?wrap=1)[Download comp\_constants.py](https://canvas.asu.edu/courses/177204/files/79050657/download?download_frd=1)  
[read\_netlist.py](https://canvas.asu.edu/courses/177204/files/79050658/download?wrap=1)[Download read\_netlist.py](https://canvas.asu.edu/courses/177204/files/79050658/download?download_frd=1)  
[netlist\_stub.py](https://canvas.asu.edu/courses/177204/files/79050656/download?wrap=1)[Download netlist\_stub.py](https://canvas.asu.edu/courses/177204/files/79050656/download?download_frd=1)(this is the one you need to modify and rename hw3.py.)

There are example netlists provided in the lectures.